

Claims:

- 1        1. A fiducial apparatus to be inserted into a target region, comprising:
  - 2            a body portion made of a material that is visible using electromagnetic radiation; and
  - 3            one or more anchoring devices connected to the body portion, each anchoring device
  - 4            having an unanchored position and an anchored position, the unanchored position permitting the
  - 5            body portion to move within the target region and the anchored position anchoring the fiducial
  - 6            apparatus into the target region.
- 1        2. The apparatus of Claim 1, wherein the body portion further comprises a radio  
2            opaque material so that the apparatus is viewable using electromagnetic radiation.
- 1        3. The apparatus of Claim 1, wherein the body portion comprises a memory metal  
2            member that bends in response to an appropriate signal to anchor itself into the target region.
- 1        4. The apparatus of Claim 3, wherein the appropriate signal further comprises an  
2            electric field.
- 1        5. The apparatus of Claim 3, wherein the appropriate signal further comprises a  
2            predetermined temperature.
- 1        6. The apparatus of Claim 4, wherein the memory metal further comprises nitinol.
- 1        7. The apparatus of Claim 1, wherein each anchoring device further comprises an  
2            anchor member and an elastic member connected to the anchor member that urges the anchor  
3            member into the anchored position.
- 1        8. The apparatus of Claim 7, wherein the anchor member comprises a spike that  
2            embeds itself into the target region.

1           9.     The apparatus of Claim 8, wherein the spike further comprises a pyramidal shaped  
2 member.

1           10.    The apparatus of Claim 7, wherein the anchor member is an elongated rectangular  
2 shaped member that embeds into the target region.

1           11.    The apparatus of Claim 1, wherein the target region comprises a target region  
2 within a human body.

1           12.    The apparatus of Claim 11, wherein the target region further comprises a tumor in  
2 the body of the patient.

1           13.    The apparatus of Claim 1, wherein the body portion further comprises a material  
2 that is viewable using a ultrasound image.

14.    A method for anchoring a fiducial in a target region, comprising:

1           inserting the fiducial into the target region, the fiducial having an anchoring device that  
2 anchors the fiducial into the target region, the anchoring device being held closed while being  
3 inserted into the target region; and

1           anchoring the fiducial into the target region after the fiducial is inserted into the target  
2 region, the anchoring device opening as the fiducial has been inserted into the target region.

1           15.    The method of Claim 14, wherein the insertion further comprises injecting the  
2 fiducial into the target region using a needle.

1           16.    The method of Claim 14, wherein the anchoring further comprises moving one or  
2 more anchor devices into an anchored position in order to embed the one or more anchor devices  
3 into the target region.

1           17.    A fiducial apparatus, comprising:

2           a body portion; and

3           means for anchoring the body portion into the target region so that the fiducial apparatus  
4   cannot move, each anchoring device having an unanchored position and an anchored position,  
5   the unanchored position permitting the body portion to move within the target region and the  
6   anchored position anchoring the fiducial apparatus into the target region.

1           18.   The apparatus of Claim 17, wherein the body portion further comprises a radio  
2   opaque material so that the apparatus is viewable using electromagnetic radiation.

1           19.   The apparatus of Claim 17, wherein the body portion comprises a memory metal  
2   member that bends in response to an appropriate signal to anchor itself into the target region.

1           20.   The apparatus of Claim 19, wherein the appropriate signal further comprises an  
2   electric field.

1           21.   The apparatus of Claim 19, wherein the appropriate signal further comprises a  
2   predetermined temperature.

1           22.   The apparatus of Claim 20, wherein the memory metal further comprises nitinol.

1           23.   The apparatus of Claim 17, wherein each anchoring device further comprises an  
2   anchor member and an elastic member connected to the anchor member that urges the anchor  
3   member into the anchored position.

1           24.   The apparatus of Claim 23, wherein the anchor member comprises a spike that  
2   embeds itself into the target region.

1           25.   The apparatus of Claim 24, wherein the spike further comprises a pyramidal  
2   shaped member.

1           26.   The apparatus of Claim 23, wherein the anchor member is an elongated  
2   rectangular shaped member that embeds into the target region.

1           27.   The apparatus of Claim 17, wherein the target region comprises a target region  
2   within a human body.

1           28.     The apparatus of Claim 27, wherein the target region further comprises a tumor in  
2     the body of the patient.

1           29.     The apparatus of Claim 17, wherein the body portion further comprises a material  
2     that is viewable using a ultrasound image.